

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed April 29, 2011 have been fully considered but they are not persuasive. Regarding claim 1, the applicants' representative asserts that Kondylis's teaching of signaling subsection is not the same as, or equivalent to the beacon frame that includes a reservation for a planned transmission by a sender device during the superframe. The examiner respectfully agrees and maintains that Kondylis's teaching of a node X transmitting, in a reservation slot of a frame a reservation request, wherein the reservation request indicates a data slot in the frame to be reserved for the node X for transmission of data in the frame (see fig. 9, col. 17, lines 29-33 and lines 45-53) is equivalent to the applicants "beacon frame that includes reservation for a planned transmission by a sender device" as recited in claim 1 because the reservation request transmitted by node X occurs in timeslots at the start of the frame (see fig. 9), and the reservation request also includes the data slot in the frame to be reserved for transmission by the node X. Therefore, the examiner maintains that reservation request is equivalent to the applicants' limitation of a "beacon frame" as recited in claim 1.

### ***Allowable Subject Matter***

2. Claims 2, 6, 8, 10, 13, 16-18, 20, 21, 23-26, 29-32 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-5, 7, 9, 11, 12, 14, 15, 19, 27, 28 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by **Kondylis et al 6,665,311 (hereinafter Kondylis)**.

Regarding **claim 1**, Kondylis discloses a method of decentralized medium access control in a communications network (TDMA-based distributed reservation protocol in a mobile ad hoc network, see col. 15, lines 26-28) including a plurality of devices (neighboring nodes X and Y, see col. 17, lines 21-29 and 61-66), comprising the steps of: dividing time into a sequence of at least one superframe (frame 900, see fig. 9, col. 16, lines 60-63); and a first device of said plurality of devices (Node X, see col. 17, lines 29-33) transmitting in the superframe at a target beacon transmission time (TBTT) (Node X transmitting at the beginning of the reservation slots 902 in the frame 900, see figs. 9 and 10, col. 16, line 62 – col. 17, line 5) a beacon frame that includes a reservation for a planned transmission by a sender device (Node X, see col. 17, lines 21-29 and 61-66), during the superframe (node X transmitting in a reservation slot of a frame a reservation request, the reservation request indicating data slot in the frame to

be reserved for the node X for transmission data in the data slots of a frame, see col. 17, lines 29-33 and lines 45-53).

Regarding **claim 3**, Kondylis further discloses the method of claim 1, further comprising grouping the beacon frame transmitted by each of the plurality of devices into the superframe as at least one beacon period (signaling period/subframe 902, see fig. 9, col. 16, lines 62-62) having a starting point at a beacon period start time (BPST) and followed by a data transmission phase (inherent, since the signal period/subframe of 902 comprises a plurality of reservation slots 906, which have beginning and end time in the frame 900, see fig. 9, col. 16, lines 62-64).

Regarding **claim 4**, Kondylis further discloses the method of claim 1, further comprising prior to a new or a change of an existing reservation of the sender device, the sender device negotiating with a receiver device of the transmission that is planned during the reservation (the transmitting node X, receiving a reservation confirmation from the one-hop neighbors, so that it can broadcast packets to the nodes in the reserved slot, see col. 18, lines 38-46).

Regarding **claim 5** as applied to claim 4, Kondylis further discloses said negotiation comprising: an initiator device (Node X, see col. 17, lines 29-33) of the reservation transmitting a distributed reservation protocol (DRP)-Request message (node X transmitting in a reservation slot of a frame a reservation request, see col. 17, lines 29-33 and lines 45-53) comprising at least one reservation description selected from the group consisting of a starting time, and a duration signaled by means of BPST or TBTT offset, a reservation period (node X transmitting in a reservation slot of a frame

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a reservation request, the reservation request indicating data slot in the frame to reserved by the node X for transmission of data, see col. 17, lines 29-33 and lines 45-53), a bitmap indicating the reserved times, at least one time slot number, a priority, a channel/hopping indicator, and a code sequence; and in response to said DRP-Request, said negotiation further comprises at least one receiver device of the reservation (neighbors of the node X receiving the reservation request, see col. 17, lines 29-31) transmitting a distributed reservation protocol (DRP)-Response message that includes an indicator selected from the group consisting of the proposed reservation is accepted, the proposed reservation is rejected (NACK packet, see col. 18, lines 20-37) with an alternative reservation proposal and the proposed reservation is rejected without an alternative proposal.

Regarding **claim 7**, Kondylis further discloses the method of claim 1, further comprising including in the beacon frame of the first device a starting time of the reservation relative to a reference point selected from the group consisting of the TBTT of the first device, the BPST of the beacon period in which the first device is transmitting the beacon frame, the beginning of the superframe, a time period of the superframe, and a time slot of the superframe (node X transmitting in a reservation slot of a frame a reservation request, the reservation request indicating data slot in the frame to reserved by the node X for transmission of data, see col. 17, lines 29-33 and lines 45-53).

Regarding **claim 9**, Kondylis further discloses the method of claim 1, further comprising: maintaining by each device of said plurality a table of all planned reservations received or sent by the device (see col. 18, lines 39-46).

Regarding **claim 11** as applied to claim 1, Kondylis further discloses defining said superframe (frame 900, see fig. 9, col. 16, lines 60-63) as comprising a plurality of medium access time slots (data slots 908, see fig. 9, col. 16, lines 62-66); and defining a reservation as a starting time slot of said plurality of medium access time slots and duration as a number of medium access time slots (node X transmitting in a reservation slot of a frame a reservation request, the reservation request indicating data slot in the frame to reserved by the node X for transmission of data, indicating that the reservation request indicates the duration of a data slot and the data slot from which the node X starts the transmission, see col. 17, lines 29-33 and lines 45-53).

Regarding **claim 12** as applied to claim 1, Kondylis further discloses: defining said superframe as comprising a plurality of time units (frame 900 comprising signaling subframe 902 and data subframe 904, see fig. 9, col. 16, lines 62-66); and defining a reservation as a starting time in time units and duration as a number of time units (inherent, since node X transmits a reservation request, the reservation request indicating data slot in the frame to reserved by the node X for transmission of data, indicating that the reservation request indicates the duration period of a data slot and the data slot period from which the node X starts the transmission, see col. 17, lines 29-33 and lines 45-53).

Regarding **claim 14** as applied to claim 1, Kondylis further discloses the method of claim 1, further comprising: defining said superframe as comprising a plurality of medium access time slots (data slots 908, see fig. 9, col. 16, lines 62-66); and defining a reservation as at least one element selected from the group consisting of a

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reservation period (node X transmits a reservation request, the reservation request indicating data slot in the frame to reserved by the node X for transmission of data, indicating that the reservation request indicates the duration period of a data slot and the data slot period from which the node X starts the transmission, see col. 17, lines 29-33 and lines 45-53), a reservation offset, a reservation period offset, a reservation duration, a bitmap of at least one medium access time slot and a type of reservation (see fig. 5, col. 7, lines 58-62, col. 8, lines 1-12).

Regarding **claim 15** as applied to claim 1, Kondylis further discloses the method of claim 1, further comprising defining a reservation as one element selected from the group consisting of: a plurality of reservations per superframe and valid for a single superframe, a plurality of reservations per superframe and valid for a plurality of superframes, single reservation per superframe and valid for a single superframe (node X transmitting in a reservation slot of a frame a reservation request, the reservation request indicating data slot in the frame to be reserved for the node X for transmission data in the data slots of a frame, see col. 17, lines 29-33 and lines 45-53), and single reservation per superframe and valid for a plurality of superframes.

Regarding **claim 19** as applied to claim 1, Kondylis further discloses the method of claim 1, further comprising including availability information in a beacon frame of a device (node X transmitting in a reservation slot of a frame a reservation request, the reservation request indicating data slot in the frame to be reserved for the node X for transmission data in the data slots of a frame, see col. 17, lines 29-33 and lines 45-53).

Regarding **claim 27** as applied to claim 1, Kondylis further discloses wherein the transmitting includes in the beacon frame information of a reservation selected from the group consisting of a starting point and duration, and a bitmap; and the including is optional (node X transmitting in a reservation slot of a frame a reservation request, the reservation request indicating data slot in the frame to be reserved for the node X for transmission data in the data slots of a frame, see col. 17, lines 29-33 and lines 45-53) **(it is noted that the limitation of claim 27 is optional, and therefore the examiner only addresses the transmitting as disclosed in claim 1).**

Regarding **claim 28** as applied to claim 1, Kondylis further discloses respecting the reservation by all devices receiving a beacon frame that includes a reservation (all nodes update their slot classification tables to reflect data slots scheduled for transmission by other nodes, see col. 18, lines 39-46).

Regarding **claim 33** as applied to claim 27, Kondylis further discloses the receiver device of a reservation performing: in case of a Soft Reservation, starting an own transmission if the sender device does not use the reserved time; in case of a Hard Reservation, not accessing the medium if the sender device of the planned transmission does not use the reserved time; and in case of a Beacon Period Reservation, reserving the time for beacon transmission only (node X transmitting in a reservation slot of a frame a reservation request, the reservation request indicating data slot in the frame to be reserved for the node X for transmission data in the data slots of a frame, see col. 17, lines 29-33 and lines 45-53) **(it is noted that the limitation of claim 33 depends**

**on claim 27 which is optional, and therefore the examiner only addresses the transmitting as disclosed in claim 1).**

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLUMIDE T. AJIBADE AKONAI whose telephone number is (571)272-6496. The examiner can normally be reached on M-F, 8.30p-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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